Evaluation of general practitioners' routine assessment of patients with diabetes in Tshwane, South Africa

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Abstract

Background: Diabetes mellitus is a composite disease that, if not well managed and controlled, may lead to severe complications. To avoid or delay these debilitating complications, it is necessary for the practitioner to implement adequate management of the disease by using currently available clinical guidelines. The authors wished to establish the use of existing diabetes management guidelines by general practitioners (GPs) in the City of Tshwane (Pretoria) Metropolitan Municipality of South Africa.

Method: A cross-sectional and descriptive study was conducted. A total of 50 randomly selected general practitioners participated in the survey.

Results: A large majority of the participants (92%) was aware of the existence of the latest guidelines for the management of diabetes in South Africa. The assessments performed by most GPs were body mass index and lipid profile, as reported by 96% of the respondents, followed by foot examination, microalbumin (88%) and glycated haemoglobin (84%) measurements. The practice of eye specialist referrals was found adequate in 22% of the participants. Fifty-four per cent reported that they did not undertake any continuing professional development activity regarding diabetes in the preceding year.

Conclusion: Although the GPs surveyed in the Tshwane district were aware of the existence of guidelines for the assessment of patients with diabetes, their implementation was not satisfactory. Training institutions play a pivotal role in guiding future practitioners to improve such implementation. Also, the improvement of the quality of primary health care systems is of great importance.

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Introduction

Diabetes mellitus is a composite disease and multiple factors are involved in its development. If not managed appropriately, acute and long-term complications may compromise the patient's wellbeing and possibly result in death. While acute complications may be detected and addressed promptly, long-term complications are insidious and not easily recognisable by the patient. The medical practitioners caring for diabetes patients should be aware of long-term complications such as diabetes retinopathy, cataracts, diabetes nephropathy, diabetic foot, which could result in amputation, dyslipidaemia, peripheral and/or autonomic neuropathy, and cardiovascular complications such as atherosclerosis, which could result in ischaemic heart disease or cerebrovascular accident.

Doctors should also be proactive in the management of their patients, looking for signs, symptoms and/or laboratory markers and appropriately responding to them in order to keep patients healthy despite the presence of diabetes. In order to practice good diabetic medicine, the practitioner should also be aware of current guidelines and apply them routinely.

The Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA), as the scientific authority on diabetes mellitus, publishes guidelines for the management of diabetes mellitus from time to time. The authors used the recently released SEMDSA guidelines for the management of diabetes mellitus in primary health care in South Africa to assess their implementation by general practitioners (GPs).[1]

The guidelines recommend the following routine tests and investigations for a patient with diabetes mellitus:

- Glycated haemoglobin, performed quarterly, if treatment is changed or not meeting goals, and at least twice a year if stable
- Dilated eye exam, annually
- Comprehensive foot examination, annually and more often in patients with high-risk foot conditions

- Lipid profile, annually
- Serum creatinine level, annually
- Microalbumin measurement, annually in the absence of persistent dipstick proteinuria
- Blood pressure, at each regular diabetes visit
- Body mass index (BMI) and waist circumference, initially and weighed at each visit
- Electrocardiogram (ECG), annually if possible

Method

Study design

A cross-sectional and descriptive study was conducted of general practitioners in the City of Tshwane (Pretoria) Metropolitan Municipality to evaluate level of awareness and practice of annual assessment among patients with diabetes under their care. GPs in the Tshwane district involved in the management of patients with diabetes were randomly selected. General practitioners who did not manage patients with diabetes and nonmedical practitioners involved in the management of patients with diabetes, including alternative and traditional medical practitioners, were excluded from the study.

Sampling

Fifty general practitioners were recruited as subjects of the study. The total number of the general practitioners in the area was 115 at the time the survey and a sample size of 50 was determined with the use of random sampling method. A random number table was used to give every GP in the area an equal chance of being selected.

A self-administered questionnaire was used to obtain information regarding the routine care that diabetes patients received from the participants using the above-mentioned SEMDSA guideline as reference. The questionnaire also included demographic data.

Data were collected using Microsoft Excel® and a statistician assisted in their analysis. Data analysis was descriptive with the presentation of summary statistics (frequencies, percentages and charts).

Ethical considerations

The study protocol was approved by the University of Pretoria Ethics Committee. Informed consent was obtained from the participants.

Results

Demographic data

Of the 50 participating GPs, 74% were male and 26% female. Eighty-four per cent were under 45 years of age (Figure 1). The majority worked in private practice (Figure 2). Eighty-eight per cent had five or more years of experience in general practice with 62% having worked as a GP for at least nine years (Figure 3).

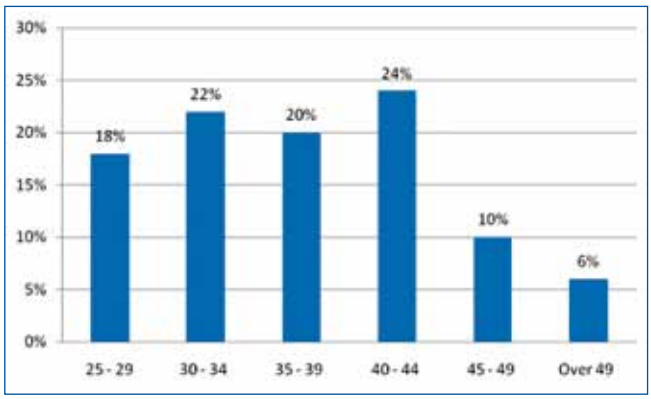

Figure 1: Age distribution of participants (years)

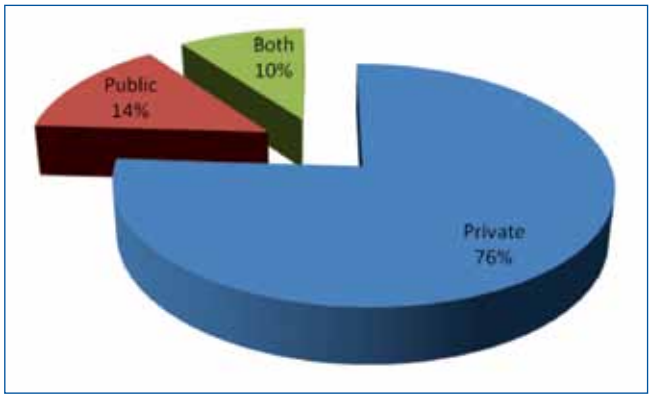

Figure 2: Category of practice

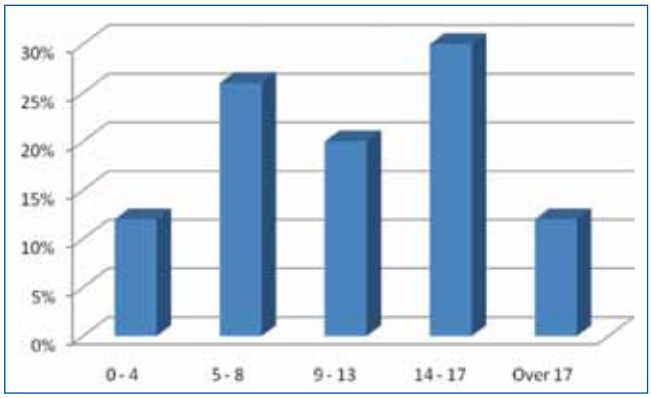

Figure 3: Number of years in general practice

Ninety-two per cent of participating GPs was aware of the standard of care for diabetic patients, while 6% of the GPs were not aware and another 2% did not respond to this question.

The majority of the GPs were satisfied with the guidelines: 48% believed that the guidelines were very adequate and 20% believed that they were adequate, while 32% could not give a judgement on the adequacy of the guidelines.

Of the examinations recommended by the SEMDSA guideline for the routine assessment of diabetic patients, blood pressure, lipid profile, BMI, foot examination and microalbumin measurements were most frequently carried out (Figure 4). Only 36% performed eye examination and

ECG was the least commonly utilised examination as only 14% of GPs reported its use.

Referrals to the ophthalmologist were poor among the GPs, as only 22% of the GPs routinely referred patients with diabetes to ophthalmologists.

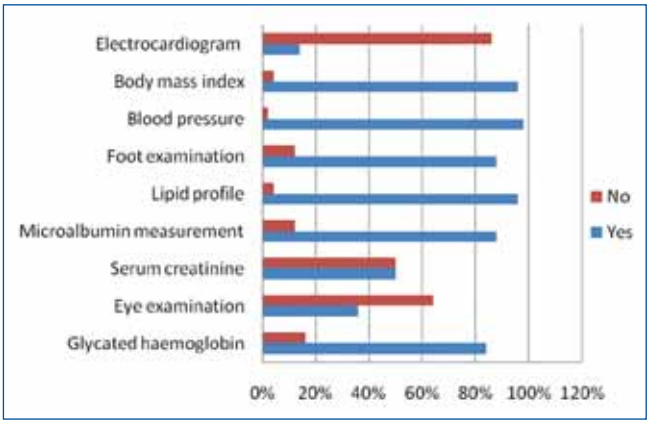

Figure 4: Routine assessments of patients with diabetes

When asked what factors could be limiting the implementation of guidelines, the majority of the participants reported none. Others blamed patient noncompliance (18%), financial restraints (10%) and workload (10%), among others.

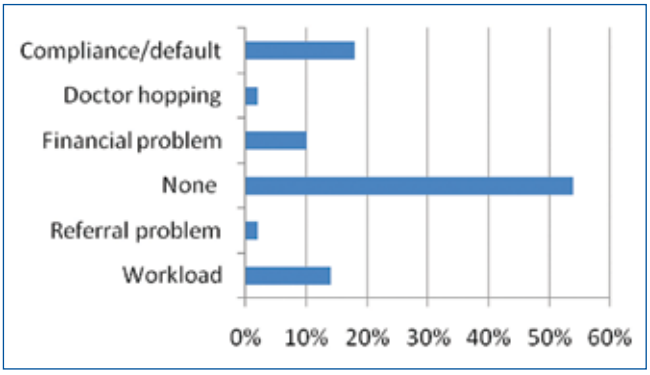

Figure 5: Factors limiting the implementation of guidelines

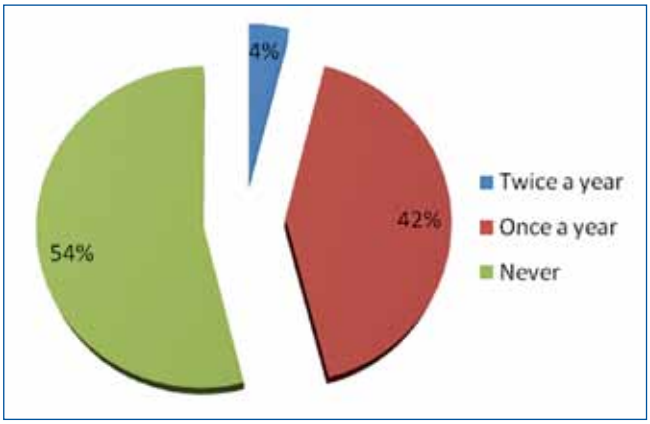

Figure 6: Distribution of participants undertaking continuing professional development activities in diabetes management

The majority of participants (54%) did not undertake a continuing professional development activity in diabetes management during the preceding year.

Discussion

This study was conducted to establish if the participants used recently published guidelines for the management of patients with diabetes mellitus.

As the majority of the participants were in private practice, the authors expected them to conduct more routine assessments than those in the public sector. However, the results were disappointing. The study established that routine assessments related to diabetes fell short of national guidelines. The findings were similar to those published by Burt et al, who found that organisational and financial characteristics of primary care providers have little effect on the management of patients with diabetes.[2]

The study also found that involvement in the Continuing Education Programme was lacking among the participants; this may explain the low level of adherence to the guidelines. This was corroborated by a study from academic institutions in Denmark which reported a better outcome of care following a multifaceted intervention directed at general practitioners.[3] Another collaborative study involving the Australian Diabetes Society revealed that patients in a share-care model (group practice) were more likely to meet screening guidelines as opposed to GPs practicing on their own.[4]

Although the participants were aware of the guidelines, their implementation did not meet the standard prescribed by SEMDSA. Similar findings were reported in a Cape Town study which showed that the annual review of patients with diabetes was deficient.[5] A similar report was obtained from a study on family doctors' knowledge and self-reported care of patients with type 2 diabetes, in which 76% of the participating doctors were reportedly aware of the guidelines although their behaviour was not related to the knowledge of the recommended standard of care.[6]

Routine annual assessments

Glycated haemoglobin, microalbumin measurement, lipid profile, foot examination, blood pressure and BMI were the assessments most commonly performed by the surveyed population. This contrasted with the findings of a study conducted in Estonia, which found that eye examinations, blood pressure checks and serum creatinine were most frequently performed, while glycated haemoglobin was not routinely done.[6]

The administration of ECGs in the studied population was poor, as only 14% of the GPs requested it. This could be explained by the lack of equipment in GPs' rooms.

Only 36% of the participants conducted eye examinations. Lack of expertise with dilated eye examination and possible

inadequate undergraduate training regarding dilated eye examination could account for the poor routine eye assessments among the participating GPs.

Most GPs did not seem to appreciate the importance of eye examinations, although published literature supports its routine integration in the management of people with diabetes.[7,8] This finding is not limited to the population surveyed: a study of the impact of a programme to improve adherence to diabetes guidelines by primary care physicians reported very poor eye examinations and referrals.[9]

Factors limiting the implementation of guidelines

When asked what factors could be limiting the implementation of guidelines, the majority of the participants believed there were none. Elsewhere it was found that organisation of care was the main problem.[5] Attitude of primary care providers towards diabetes was considered a major limiting factor in diabetes management in a research study by Larme and Pugh.[10]

Referral to the ophthalmologist for assessment

The lack of eye examination in diabetes should be seen as a call to action. This lack has also been reported by others, such as Kristensen et al., who reported that a large proportion of their subjects did not perform eye examinations for patients with diabetes.[11] This was attributed to poor adherence by GPs to guidelines and poor cooperation between GPs and ophthalmologists. Raman et al., in a study conducted in southern India, found that only 54% of the participating GPs were aware of annual dilated eye examination referral guidelines for patients with diabetes.[12] The reasons given by the surveyed participants in that study were, among others, lack of time, lack of ophthalmoscopes and lack of training.

Whatever the causes for not conducting eye examinations, the reasons must be explored and addressed. The authors can only speculate on the possible causes. Does our medical undergraduate programme equip doctors with sufficient skills to perform dilated eye examinations? If not, why do so many GPs still not see the need to routinely refer their patients to ophthalmologists for eye examinations?

There is a need for training GPs to do eye examinations and improving their attitudes regarding the use of ophthalmologists diabetes care. Patients and health care providers will both benefit from better management of diabetes mellitus.

Conclusion

The survey found that the participating GPs did not conduct some of the annual recommended tests and investigations for the patients under their care. Though the small size of the sample limits its generalisation to the entire country, the practice appears to be common and widespread.

Adherence to published guidelines for the management of diabetes will definitely lead to better outcomes in primary health care. Adherence to guidelines may be enhanced further if care and training and retraining processes regarding the required skills are organised better. Hence the need to develop better monitoring and evaluation tools for primary health care facilities, whether in the public or private sector.

Training institutions would play a pivotal role in preparing future practitioners for the tasks ahead. The quality of the primary health care delivery system in different districts in the country is also of great importance. Continued training and support of health care providers by family practitioners in the districts should be encouraged and supported by the managers of health services. Continuing professional development activities should be undertaken with the patient in mind, and not merely as an exercise to please the Health Professions Council, to address shortcomings in the management of common conditions such as diabetes mellitus.

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